What is claimed is:

1. An ionization sensor comprising:

a first electrode situated in a first plane;

a second electrode situated in the first plane;

a third electrode situated in a second plane; and

a fourth electrode situated in a third plane; and

wherein:

the second plane is approximately parallel to the first plane; and

the first and second electrodes are proximate to the third and fourth electrodes.

2. The sensor of claim 1, wherein:

the first and second electrodes have first and second terminals for connection to a first power supply; and

the third and fourth electrodes have first and second terminals for connection to a second power supply.

3. The sensor of claim 2, wherein the third and fourth electrodes form an electrical discharge gap.

4. The sensor of claim 3, wherein the first, second and

third planes are approximately in the same plane.

5. The sensor of claim 3, wherein:

the first plane is situated on a first surface of a first wafer;

the second plane is situated on a second surface of a second wafer; and

the first and second wafers form a fluid flow channel.

6. An ionization sensor comprising:

a first electrode having a first plurality of prongs situated approximately in a plane; and

a second electrode having a second plurality of prongs situated approximately in the plane and proximate to the first plurality of prongs to form a plurality of electrical discharge gaps between the first and second electrodes.

7. The sensor of claim 6, further comprising a channel, wherein the channel comprises the first and second electrodes.

8. The sensor of claim 7, wherein the channel is a fluid flow channel.

9. The sensor of claim 8, further comprising a spectrometer optically coupled to the plurality of electrical discharge gaps.

10. The sensor of claim 9, wherein the plane is approximately parallel to a fluid flow direction of the channel.

11. The sensor of claim 9, further comprising:

a third electrode situated approximately in the plane and proximate to the first and second electrodes; and

a fourth electrode situated approximately in the plane and proximate to the first and second electrodes.

12. The sensor of claim 11, wherein:

an A.C. voltage supply is connected to the first and second electrodes; and

a D.C. voltage supply is connected to the third and fourth electrodes.

13. The sensor of claim 12, wherein first and second electrodes have a dielectric coating.

14. The sensor of claim 13, wherein the third and fourth electrodes have no dielectric coating.

15. The sensor of claim 9, further comprising a processor connected to the spectrometer.

16. An ionization sensing means comprising:

means for conveying a flow of a fluid; and

means for providing an ionizing electrical discharge situated in the means for conveying a flow of a fluid.

17. The means of claim 16, wherein the fluid is a gas.

18. The means of claim 17, further comprising a means for enabling measurement of a variable discharge current as a composition of the gas in the discharge changes with time.

19. The means of claim 18, wherein the composition of the gas in the discharge changes with time in accordance with concentration peaks eluting from a gas chromatography analyzer.

20. The means of claim 16, further comprising a spectrometer optically coupled to the channel.

21. The means of claim 16, further comprising means for separating individual gas constituents of a sample fluid, if the fluid is a gas mixture.

22. The means of claim 21, further comprising means for determining thermal conductivity connected to the means for separating.

23. The means of claim 22, further comprising means for determining flow of a fluid situated proximate to the means for separating.

24. A method for ionization sensing, comprising:

providing a channel for a flow of a fluid; and

providing an ionization electrical discharge in the channel.

25. The method of claim 24, further comprising providing spectral analysis of light in the channel.

26. The method of claim 25, further comprising making a

plurality of measurements with the spectral analysis of light in the channel to minimize false positives.

27. The method of claim 25, further comprising:

providing flow sensing in the channel; and

providing thermal conductivity detection proximate to the channel.

28. The method of claim 27, further comprising providing separating in the channel.

29. A gas ionization sensor comprising:

a first electrode situated in a plane; and

a second electrode situated in the plane; and

wherein:

the first and second electrodes are discharge power electrodes; and

the first and second electrodes are discharge current sense electrodes.

30. The sensor of claim 29, wherein the first and second electrodes sense presence and changes of analytes in a gas proximate to the electrodes.